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ABSTRACT

The paper presents a review of research issues in serving severely and profoundly retarded students in integrated settings. Five general areas are reviewed: incidence studies, population descriptions, assessment considerations, curriculum approaches (individualization, curriculum focuses, motor skills, self-help and play skills, communication skills, and academic skills), and systems (teachers, resources, parents, and community). A series of recommendations are offered for policy and methodology concerns, assessment and placement approaches, curriculum and classroom management, and systemic supports and resources. (CL)

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INTEGRATION FACTORS AND EDUCATIONAL PLANNING FOR DEVELOPMENTALLY DELAYED CHILDREN: A REVIEW OF THE LITERATURE

Laura S. Weintraub

March, 1983

A joint project of the Metropolitan Separate School Board
and the Metropolitan Toronto School Board

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and

EXECUTIVE SUMMARY

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April, 1983

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

In order to evaluate most effectively critical aspects of current and future educational provision for developmentally delayed children, senior administrative and research personnel of MSSB and MTSB requested the provision of an intensive literature review. The objective of the study was to provide research-based guidance regarding programme development and monitoring, and to identify issues requiring further education-based evaluation within a "state of the art" research context.

Consequently a joint research project was initiated in November 1982, and a contract formulated with I. S. Weintraub to provide a fully-referenced document delineating significant research issues pertaining to incidence, population description, assessment, curriculum and service delivery components concerning children identified as severely and profoundly mentally retarded. The study was received in February 1983, and accepted as providing a sound research basis for guiding planning and evaluative functions. In March 1983 supervisory personnel of the two Boards met with Ms. Weintraub to review her findings and to discuss the implications within the specific context of MSSB's and MTSB's special education and research frameworks.

The Executive Summary contained herein provides a listing of relevant cautions and recommendations arising from the review of the literature. Areas and issues conducive to future research activities are signalled by an asterisk but not yet assigned priority designations. It is anticipated that both the Executive Summary and the Review of the Literature will provide a context for discussion and decision regarding allocation of resources and priorities for educational service to developmentally delayed children in a manner consistent with each Board's educational philosophy and goals.

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Four broad areas have been identified as key decision-making points in the delivery of services to severely and profoundly mentally retarded children and include:

A. Policy and Methodology Concerns
B. Assessment and Placement Approaches
C. Curriculum and Classroom Management
D. Systemic Supports and Resources.

The statements listed below are general in nature and readers are referred to Ms. Weintraub's study for elaboration and citations.

A. Policy and Methodology Concerns

IT IS RECOMMENDED THAT:

*1. definitions of educational objectives and criteria for programme success be carefully delineated for each child to prevent mere technical compliance with the principles of normalization.

2. diversity of service delivery options, ranging from fully integrated to protective educational arrangements, remain open to permit the accommodation of each child's unique and evolving constellation of needs and abilities.

3. caution be utilized in generalizing from isolated research studies in view of the frequently disjointed, inconclusive or contradictory results of such studies.

*4. in acknowledging the absence of conclusive research regarding integrated educational services for developmentally delayed children, ongoing and decision-oriented evaluation be undertaken to monitor programme effectiveness.

5. ongoing and formative evaluation recognize the diversity and complexity of contexts and process variables interacting with and affecting each child's educational career, and consequently utilize multi-perspective and meta-systemic research design.

6. the administrative, teaching and consultative/support team(s) be collectively responsible for assuming ongoing leadership in accommodating parental viewpoints and perspectives, and devising appropriate structures and opportunities for inclusive decision-making.

*7. formative evaluation be undertaken to ascertain the necessary prerequisites to and active supports for parental inclusion in strengthening multi-perspective commitment to developmental and educational programming.

*8. mechanisms and structures to facilitate community liaison and information service provision be developed, to assist parents and teachers in locating relevant professional, informational, medical-dental, counselling, parent relief, recreational, planning and advocacy-guardianship services.

9. administrative, research and parental expectations of programme and pupil outcome recognize the practical difficulties in applying resource-rich research findings to classroom settings, particularly in light of budget, teacher-pupil ratio, staffing and logistics constraints.

*10. operating procedures regarding the utilization of behaviour management techniques, inclusive of concerns regarding technical efficacy and opportunities for generalization, be developed and regularly reviewed.

*11. policy guidelines regarding the ethical utilization of behaviour management techniques be devised and disseminated in consultation with the appropriate parenting /advocacy, teaching, administrative, community and other relevant professional groups and representatives.

*12. formative evaluation of adherence to ethical standards and efficacy of behaviour management be considered within the context of programme objectives for each child.

B. **Assessment and Placement Approaches**

IT IS RECOMMENDED THAT:

13. assessment and placement approaches reflect the often difficult nature of ascribing a primary disability to multi-handicapped and severely and profoundly mentally retarded children, and that arbitrary intake and exclusion decisions be avoided.

14. placement decisions be based upon a prescriptive, multi-perspective assessment of each child, and that the configuration of each pupil's developmental, educational and familial needs direct placement.

15. placement decisions favour resource-rich and suitable environments over resource-poor or clearly inappropriate settings even if the latter are integrated.

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*16. assessment approaches not be confused with traditional psychological testing, and that linkage of ongoing and prescriptive assessment with programme development be emphasized.

*17. assessment procedures be broadly construed and utilize multi-source and multi-context information, always inclusive of parental/residential perspectives, and inclusive of neurological, vision, hearing, medical and other indicators as required.

*18. assessments include observation of and interaction with each child in surroundings familiar to the child, and that people familiar with and well-known to the child be present to assist in and offer comment upon the assessment procedures and results.

19. all assessments be regarded as current statements reflective of specific contexts and times as opposed to static and fixed or predictive analyses.

*20. assessment include attention to significant adaptive parameters as required, such as extent of ambulation, motor skills and global fitness; differential and combined communication modes; self-feeding, table manners and nutritional intake; toileting skills, physical hygiene, body awareness and self-dressing and grooming; presence and context of stereotyped behaviours; isolated, parallel, and social play skills and effect; extent of functional pre-academic and academic skills and prior learning opportunities, matched to the child's preferred communication modes.

*21. assessment descriptions, analyses and recommendations be dated, utilize accessible vocabulary, and be made available to teachers and to parents/residential staff, with specification of assessment contexts and approaches.

*22. programme and consequent placement decisions based upon ongoing prescriptive assessments be reviewed on a regular and multi-perspective basis to ensure coalescence between educational objectives, individualized assessment and pupil progress.

C. Curriculum and Classroom Management

IT IS RECOMMENDED THAT:

*23. curriculum objectives be constructed to promote change in real social behaviour, recognizable within the context of the classroom and relevant to generalized situations beyond the school setting.

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*24. in recognition of the absence of research consensus regarding appropriate curriculum and teaching methods, arbitrary curriculum selection and continuation be avoided by conducting formative evaluations of curriculum effectiveness and pupil outcome.

*25. any research programme designed to evaluate the effectiveness of curriculum recognize the dynamic interaction of programme objectives, classroom variables, instructional approaches and the familial/residential environment.

*26. any curriculum or programme orientation should attend to appropriate developmental and skill sequencing, utilization of sufficiently discrete and attainable training stages, effective and appropriate reinforcement and encouragement of sustained learner motivation, and sufficient opportunities to generalize and utilize newly learned skills and behaviours.

*27. selected curricula correspond to the adaptive functioning parameters outlined in 20, inclusive of motor skills, self-help and play skills, social communication and functional academics, within the broader developmental perspective of the infancy-childhood-adolescent-adulthood continuum.

28. in-service and administrative accommodation of the role of teacher as instructional manager be encouraged and supported, and recognize demands upon teacher time and expertise in utilization of aides and volunteers, selection and modification of appropriate curriculum materials, and leadership in shaping attitudes of non-handicapped pupils particularly with reference to novel equipment, approaches and situations and assisting in defining and identifying criteria of educational success in handicapped pupils.

29. formative and multi-perspective evaluation regarding suitable use of teacher aides, peer support, curricular materials and classroom organization options be constructed while recognizing the unique constellation of pupil and teacher variables within each classroom context.

*30. structured and explicit approaches to meaningful social integration be devised for teacher utilization and modification, inclusive of awareness of the quality of life experience of both handicapped and non-handicapped pupils.

31. the considered and ongoing assessment of pupil needs and abilities direct the selection of curricular focus and materials, and inform the orientation of programme and teaching strategies, as opposed to permitting the availability of ready-made curricula or technologies to dictate the direction of classroom-based activities.

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D. **Systemic Supports and Resources**

IT IS RECOMMENDED THAT:

*32. the selection and utilization of supports and resources be ascertained on the basis of pupil and teacher requirements, particularly with reference to prevention of teacher "burn-out".

33. consultative and multi-disciplinary services include in-class contribution as required, and that the classroom-oriented services of a variety of professionals be secured as required.

34. availability of special supports for pupils, teachers and families be provided if required to assist with high-risk children or those with deteriorating medical prognoses.

*35. periodic and regular reviews be made of the suitability and age-appropriate nature of the school environment, curriculum, transportation, equipment and facilities, particularly with reference to the promotion of independent ambulation and social skills, and the fostering of appropriate social and peer interaction.

*36. structures and mechanisms be devised and adapted to promote teacher participation in decision-making, planning, implementation and evaluation of all facets of educational provision for developmentally delayed children.

*37. a review of the efficiency and utility of record-keeping systems and the teacher orientated nature of curriculum/material centers.

*38. professional development and in-service provisions utilize teacher-parent-administration for multi-perspective decision-making, and be devised on the basis of identified skill needs and priorities and the prior determination of most effective methods for providing such services.

*39. that consultative, resource, research and in-service supports be evaluated formatively on the basis of pupil and teacher-oriented criteria.

* indicates areas and issues conducive to and requiring further classroom and system-based research/evaluation

Prepared for the Metropolitan Separate School Board and the Metropolitan Toronto School Board

INTEGRATION FACTORS AND EDUCATIONAL PLANNING FOR DEVELOPMENTALLY DELAYED CHILDREN: A REVIEW OF THE LITERATURE

Laura S. Weintraub

I. INTRODUCTION

The objective of this paper is to review issues emerging from the research literature germane to the provision and evaluation of integrated service to children considered severely and profoundly retarded. Implications arising from selected research issues and divergent methodological approaches will be identified. Six general areas are reviewed and include incidence studies, population descriptions, assessment considerations, curriculum approaches, programme delivery and placement decisions. The introductory section presents an overview of definitional concerns and influences in the field of mental retardation.

In a comparative study of research on exceptionality, Dissinger and Arnold (1975) elucidate general principles to guide analysis of the legitimacy of researchers' claims. Their review of the experimental literature encompasses a range of familiar categories of disability, and utilizes specific studies as exemplars of useful or problematic research approaches. They suggest that the body of research on interventions with mentally retarded individuals illustrates unusually sound methodological techniques. The existence of explicit, clear and widely accepted diagnostic definitions is identified as a significant factor positively influencing the utility of retardation research.

The provision of accurate descriptors and carefully defined diagnostic categories may indeed affect the utility of research, particularly when using the experimental literature to formulate intervention programmes. While teaching strategies for the development of reading skills may be derived from a wide range of sources, a teacher seeking information on reading programmes for a severely retarded child should be able to compare adaptability of experimental programmes with the needs of a particular child in a particular setting (Meyen and White, 1980). The diagnostic categories of the experimental

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and classroom populations need not be identical to judge practical suitability. But as Dissinger and Arnold suggest, providing a description of the experimental population based on useful diagnostic terms is indeed critical, not only to the linkage of research and practice, but also to comparisons of efficacy.

A review of the literature in the field of retardation does not, however, support the claim of definitional clarity made by Dissinger and Arnold. In fact, a majority of the studies could perhaps be characterized by absence of clearly defined terminology. Clinical and experimental reports tend to rely soley on broad categories of test scores, neglecting even the specification of test names to distinguish populations.

Intelligence quotients of unspecified origin are typically equated with descriptions, predictions and prescriptions. These equations are of historical interest in examining previous categorizations, whereby morons "ranged" from IQs of 51 to 71, imbeciles from 26 to 50, and idiots from zero to 25 (Fishler, 1971, p.171). When specific diagnosis was not available, a general category of feeble-mindedness was substituted, albeit with some nomenclature variation depending upon one's nationality.

While contemporary diagnostic terms may not evoke negative associations as readily as historical terms, the evolution of diagnosis initially may appear more sophisticated than our current labels warrant. No longer feeble-minded, the mentally retarded have emerged as a diagnostic category and are equated with IQs below 85. Within the mentally retarded (MR) population, borderlines "have" IQs of 70 to 84; educables (EMRs) 55 to 69; moderates or trainables (TMRs) 40 to 54; severe retardates (SMRs) 25 to 39; and profound retardates (PMRs) are below 25, when even "testable" (Fishler, 1971; Grossman, 1977; Telford and Sawrey, 1972). Terminology parallel to historical labels is still relied upon.

Significant changes in aproaches to assessment, diagnosis and description can be traced in the theoretical literature over the past several decades, including emphasis on the use of multi-source information (Telford and Sawrey, 1972), limitations of quotient-based numerical definitions (Fishler, 1971), use of multi-dimensional descriptions (Grossman, 1977), and need for clarity of terminology (Dissinger and Arnold, 1975). These changes are not, however, readily apparent in the experimental research.

The problems of definition, diagnosis and population description are further confounded by researchers' assumptions

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about the nature of retardation, assessment, education and research. Although assumptions are not always explicated, they become readily apparent even in the selection of titles in the literature. Divergent viewpoints are evident in two methodological reviews: Assessing Human Service Quality... An Empirical Analysis (Flynn, 1975), and "Does quality of life have to be quantified?" (Ackoff, 1975). Divergent assumptions about parents of retarded children emerge: "Family crisis and the retarded child" (Farber, Jenne and Toigo, 1960), and Let Our Children Go: An Organizing Manual for Advocates and Parents (Biklen, ed., 1974). Divergent perspectives on definition and etiology are in evidence: 'A handicap as a social phenomenon" (Bartel and Guskin, 1971), and The American Journal of Mental Deficiency. Synthesis of divergent orientations is also apparent in a title such as "Creativity in the severely retarded" (Pollack, Pollack and Tuffli, 1973).

Concepts of definition and intervention have been affected by studies in a number of fields. For example, neurology, physiology, genetics and medicine have influenced the discussion of diverse questions such as the cause of stereotyped ("self-stimulation") behaviours (Baumeister, 1978), approaches to prenatal care and genetic counselling (Koch, Fishler and Melnyk, 1971; Wright, 1971), and competing ethical considerations in the sterilization debate (Law Reform Commission of Canada, 1979). These fields have also influenced and been influenced by psychiatry, anthropology, psychology and sociology.

Psychoanalytically-oriented reports on the effects of institutional childcare on mental health (Bowlby, 1951, 1958) and subsequent reassessments (Rutter, 1981; Wortis, 1975) affect contemporary interpretations of historical treatment of the retarded (Accardo and Capute, 1979; Koch and Dobson, eds., 1971; Wolfensberger, 1975). Earlier interpretations of the etiology of childhood psychosis (Kanner, 1944; Bettelheim, 1967) drew upon case studies of extreme isolation (Gesell, 1942; Itard, 1801 in Malson, 1964). More recent analysis of development and pathology (Hutt and Hutt, eds. 1970; Wing, ed., 1969) have been influenced by and inform cross-cultural comparisons (Foucault, 1965; Hammer, ed., 1975; Mead, 1962, 1963) in turn influencing the evolution of diagnostic categories in mental retardation (Grossman, 1977; Menolascino, 1971; Menolascino and Eaton, 1967).

Theories in psychology have impacted on theories of retardation (Dobson, 1971; Ellis, ed., 1979). The earlier heredity-environment debates (Hebb, 1958; Hunt, 1961) have influenced the recent development of infant stimulation programmes (Justice, 1974; National Institute on Mental Retardation,

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1978-a; Sinson, 1973; U.S. Department of Health, Education and Welfare, 1972) as have global theories of child development (Kamhi, 1981). Psychological perspectives on language and congnitive development (Bellugi and Brown, eds., 1964; Herriot, 1973; Piaget, 1959, 1962; Luria and Yudovich, 1959; Schaff, 1973) reflect linguistic and sociological theories (Chomsky, 1975; Giglioli, ed., 1972). Echoes of these theories are found in the retardation literature (Hollis and Carrier, 1975; Garcia and DeHaven, 1974; Vetter, 1969) as are the influences of learning theory and the pervasive behavioural orientation (Bricker et al., 1969; Dobson, 1971; Zeaman and House, 1963).

In some respects, sociology has contributed most significantly to basic conceptions and investigations in the field of retardation (Nirje, 1969; Morris, 1973; Wolfensberger, 1972). Theories of self-fulfilling prophecy (Merton, 1957), deviance (Cohen, ed., 1971), and institutional contexts (Goffman, 1961, 1963) have influenced education theories about:

(1) teacher impact (Brophy and Good, 1974; Fair et al., 1980; Rosenthal and Jacobson, 1968);

(2) educational context (Jackson, 1968; Rutter et al., 1979; Shipman, 1981; Tyack 1976);

(3) efficacy of special education (Jencks et al., 1972; Kirk 1964; Lilly, 1970; UNESCO, 1973);

(4) placement debates (Blatt, 1972; Braun and Lasher, 1978; Dunn, 1968; Kirp, 1977);

(5) impact of stigma (Dexter, 1958; Edgerton, 1967; MacAndrew and Edgerton, 1964-a, 1966; Mercer, 1971; Nirje, 1969); and

(6) coalescence of the civil rights movement, labelling theory, social policy and integration (Biklen, ed., 1974; Dybwad, 1977; Mercer, 1973; Sarason and Doris, 1979; Wolfensberger, 1973).

Decisions about diagnosis influence incidence studies that report how many of which people are considered retarded and these decisions may, in turn, influence programme planning. Theories of causation will influence diagnosis, assessment styles and attitudes towards parents of handicapped children. Assumptions about retardation will affect descriptions, predictions and curriculum materials. The manner in which the retarded are described and diagnosed will affect intake and placement decisions as will theories and assumptions about etiology, child development and special education.

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Multiple influences and methodological variations evident in the literature suggest caution in generalizing from isolated or conflicting research studies to educational implementation. Despite variation or problems in the research, however, a number of implications arise and will be reviewed, first with reference to incidence.

II. INCIDENCE

It is commonplace to find that the retardation literature differentiates both diagnostic categories and incidence figures on the basis of etiology. "Familial" retardation is often separated from genetic, viral or trauma-induced causes of developmental delay (Telford and Sawrey, 1972; Wishik, 1964; Wolf and Anderson, eds., 1969). Such studies suggest that a high preponderance of mildly retarded children fall into the familial grouping. Causation is attributed to cultural or social deprivation, poverty-linked prenatal and postnatal malnutrition and other environmental factors. Severe deprivation may cause organic damage but in general it is assumed that prevention of familial retardation rests on altering environmental variables.

While a preventive focus is necessary, statistical studies linking deprivation to the EMR group have been misinterpreted. Attitude surveys of school childrens' responses to retardation indicate a mistaken belief that MR is "the mother's fault" (Siperstein and Bak, 1980; see also Mead, 1962 and Wortis, 1975). Gottlieb and Switzky (1982) suggest that such a belief not only reflects widespread lack of knowledge among children, professionals and the general public, but also contributes to unnecessary and debilitating present and future parental self-doubt (see also Fotheringham, Skelton and Hoddinott, 1971; Park 1967; Wolfensberger, 1973).

Stein and Susser (1975) note that the prevalence of PMR is not characterized by correlations with racial, cultural, economic or environmental variables, a finding corroborated by Eyman and Miller (1978) and in contrast to research claims about the less handicapped MR population. Faulty generalization from misinterpreted theories of environmental causation (Meyers, ed., 1978) may be particularly inappropriate to families of SMR-PMR children and is clearly contradicted in the incidence studies.

The history of etiological explanations of early infantile autism forewarns against simplistic interpretations of causation (Weintraub et al., 1981) and the resultant implicit judgements brought to bear against parents of

handicapped children (Park, 1967). Similar dangers emerge in the retardation literature. In a longitudinal study of psychotic children, Menolascino and Eaton (1967, p.378) stress the need for attention to "soft" neurological indications of retardation which were evident but previously ignored in the clinical diagnosis of their study population. Over time the organic and neurologically-based nature of the children's deficits became marked. While not ignoring the interplay of environmental and organic factors, the authors suggest caution before dismissing organic deficits since there is an increase in "more definitive signs of neurological damage as the child develops." Etiology and definitions of retardation will thus affect incidence reports.

The Canadian Association for the Mentally Retarded (1979) reports that 3 percent of the total population will be labelled retarded at some time in their lives; this is approximately one third of the total "disabled" population (Health and Welfare Canada, 1980). Of the estimated 690,000 MR people in Canada, 88 percent are EMR, 7 percent moderately retarded, 4 percent SMR and 1 percent PMR.

The C.A.M.R. figures suggest that 5 percent of the MR population constitutes the SMR-PMR groups. Conley (1973) reports somwhat lower figures, as do Abramowicz and Richardson (1975) and Tarjan et al. (1973). Dingman and Tarjan (1960) corroborate the report made by Eyman and Miller (1978, p.ix) that the "actual number of individuals of the more impaired group greatly exceeds the number anticipated on the basis of a normal distribution curve of intelligence." It should be noted that all incidence figures and the sources they rely upon are confounded by general problems of definitional and statistical interpretation (Weintraub et al., 1980).

Mercer (1971) reports an absence of correspondence between general incidence figures on the one hand and diagnosis and school placement statistics on the other. She also reviews (1973) the many American studies showing inordinately high over-representation of minority groups and children from low socio-economic strata appearing on the education rolls for the retarded. She links the increasing public concern about over-representation to increasing court insistence on integration of the handicapped. Over-representation may also be influenced by the etiological theories mentioned previously; cause and effect should not be confused with correlation.

Mercer (1971, p.28) states that "a person is a mental retardate when he acquires the status of mental retardate and plays the role of mental retardate." While sociological definitions may have relevance to the interaction of some children within some contexts, her argument

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is not as easily applied to severely developmentally delayed children. The impact of stigma on all handicapped individuals is not debated here. The inappropriate reliance solely on sociological perspective is disputed however, especially in light of other evidence which emerges from the incidence studies.

Balakrishnan and Wolf (1976, p.562) note that mortality rates are higher among the MR population than the general population, and that the "severe and profound categories of retardation contribute virtually all of the excess mortality." Stein and Susser (1975) note that 15 percent of the severely and profoundly retarded are non-ambulatory, and Balakrishnan and Wolf (1976, p.562) report that "mortality rates for the non-ambulatory are significantly higher than for those able to ambulate even to a small extent".

Several reports relating to improving trends in life expectancy, debates about causes for and factors affecting mortality rates, and methodological and definitional variation leading to discrepant statistics are evident in the literature, (Balakrishnan and Wolf, 1976; Miller, 1975, 1976; Tarjan, Dingman and Miller, 1960; Wishik, 1969) but beyond the scope of the current review. It is sufficient to note here that such studies underline the barrenness of considering social context in the absence of individual characteristics. The statistics also suggest that consideration be given to the need for special supports for the children, families and teachers who may be affected by high-risk or deteriorating medical prognosis. This need is not necessarily a characteristic implication for providing educational services to SMR-PMR children, merely one that could be considered if required.

O'Connor, Justice and Payne (1970) note that SMR and PMR individuals are significantly handicapped on multiple characteristics. Among a larger population Stifler et al. (1963) report that 70 percent of handicapped children have between 3 and 6 additional disabilities. Three decades ago Fouracre (1950) reported that 80 percent of physically handicapped children were multihandicapped. These figures seem somewhat inflated, however, when consideration is given to the report that 39 percent of "healthy" (non-handicapped) children have one or more adverse health conditions (Jacobziner et al., 1969). Wolf and Anderson (eds., 1969) report a high incidence of hearing impairments among mentally retarded individuals, a low incidence of visual impairments, but a very high incidence of additional complicating disabilities among children who are both retarded and blind.

Interpretive cautions are required here as well, since comparative diagnostic and incidence studies use different

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data bases. In a review of American reports on services available for multihandicapped children Wolf and Anderson (eds., 1969, p.23) note that each of the research studies focussed on very different populations, although claiming for example, to focus on the retarded-deaf child. The schools, agencies and institutions surveyed also reported serving a homogeneous population, while admission standards, testing procedures and types of children in programme varied widely. The authors conclude: "There does not appear to be a sound theoretical basis for establishing the primacy of one disability over another disability, or one placement preference over another." Many parents of multihandicapped children are familiar with the practical difficulties associated with divergent or arbitrary diagnostic, intake and placement decisions (Wolfensberger, 1973) and Wolf and Anderson (eds., 1969) underline the need to provide educational services for the children who "fall between" the diagnostic and placement gaps.

Approaches to methodology, definition and interpretation, influence and are also affected by, incidence studies, which in turn suggest implications for diagnosis, intake, placement and supports. Variable approaches in the research literature also shape descriptions and consequent expectations for SMR and PMR children. These variations will be reviewed in the following section.

III. DESCRIPTION

Clarity of definition is important when comparing efficacy of divergent research claims. A number of studies achieve this clarity by using descriptions of the reported populations and enable the reader to compare studies as well as to adapt (or choose not to adapt) experimental programmes to other contexts.

In an extensive review of the literature on people diagnosed as SMR or PMR, Berkson and Landesman-Dwyer (1977) observe that there is an historical trend evident whereby knowledge gained from less handicapped populations is gradually applied to more severely handicapped groups. The use of operant conditioning techniques used with PMR individuals which are then filtered to TMR and SMR-PMR individuals is a case in point. Application of the principles of normalization and integration are further examples of such filtering. The suitability of adapting these techniques and principles may be examined from philosophical points of view (Wolfensberger, 1972) and from specific utilitarian perspectives (Meyen and Altman, 1976). It is important to note, however, that pioneering such adaptations can be difficult because of

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the absence of precedent and consequent absence of guidelines. Hambleton and Ziegler (1974) identified the knowledge vacuum with reference to the integration of TMR children, while their study in turn enabled further exploration (Nash and McQuisten, 1977).

Problems allied with adapting programmes or even conceptualizations are certainly complicated by definitional concerns. Berkson and Landesman-Dwyer (1977, p.428) note "the lack of any clear distinction between severe and profound mental retardation in the empirical literature." Miller (1976) suggests that absence of clear distinction must be ameliorated and Conley (1973) notes that much of the research focus on SMR-PMR groups is directed to etiological explorations of rare syndromes. Conley (1973) suggests that research interests in the causes and epidemiology of these syndromes are worthy of exploration but have been erroneously generalized to the entire SMR-PMR population. Conley, Berkson and Landesman-Dwyer (1977), Miller (1976), Ryan (1973) and others, argue against assumptions of homogeneity in this population.

Berkson and Landesman-Dwyer (1977) note that absence of differential diagnosis and description is evident in the research although some exceptions are apparent even in fairly specialized areas. Clinical difficulties in differentiating between severe retardation and psychosis have been widely reviewed (Bettelheim, 1967; Havelkova, 1966; Kanner, 1944; Rimland, 1964; Rutter, 1965) and diagnostic and prognostic implications of the presence of both psychosis and retardation in the individual have been reported (Menolascino, 1971).

Beir (1964) posits five possible hypotheses to explain multiple diagnoses of psychosis and retardation. First, etiology of psychosis in the retarded population could correspond to etiological explanations in the non-retarded population. Second, psychosis and retardation could occur in severely handicapped individuals due to the same root cause, leading to multi-handicap. Third, the particular stresses of retardation could produce affective disorder. Fourth, differential diagnosis is inadequate and misdiagnosis over-identifies retardation. Fifth, developmental delay could precipitate affective disorder because of cognitive dysfunction. Absence of intact intellective functioning thus may preclude the development of adaptive concepts and behaviours.

In a longitudinal study of children diagnosed as psychotic, Menolascino and Eaton (1967, p.378) comment on the utility of psychological testing, correlations between language and affective functioning, and presence of neurological findings. They differentiate three diagnostic categories: chronic brain syndrome with psychosis, childhood schizophrenia and early

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infantile autism. While they suggest "differential diagnosis is not yet sufficiently precise for comparison of cases among different investigators", they also provide noteworthy neurological evidence of impairment causing multiple handicaps.

In a later article Menolascino (1971, p.389) stresses the need to individualize diagnostic description, the importance of recognizing that multiple handicap further interferes with adaptation, and the need "for capturing the dynamic flow of developmental events that produced the present set of behavioral symptoms in the child." He suggests that differentiation is indeed possible and that behavioural disorders are not only more frequent among retarded children but also "differ qualitatively from what is noted in non-mentally retarded children" (p.417). Menolascino concludes that psychiatric management needs are currently neglected but do not "vanish as the IQ drops below 70. The increasing realization that the mentally retarded child has a personality as well as a functioning level of intelligence is likely to be accompanied by further positive developments in this clinical area" (p.417).

Aside from recognizing the likelihood of multiple handicap among the SMR-PMR population, how does the literature classify such children? One characteristic aspect of the descriptions is consistent emphasis on deficit. Because of the severity of handicap, such children are unpredictable from one testing situation to another (Landesman-Dwyer and Sackett, 1978) or categorized as untestable (Berkson and Landesman-Dwyer 1977; Fishler, 1971; Menolascino, 1971). Haskett and Bell (1978, p.345) report that such children may be characterized by "failure to explore their environments creatively ... almost total failure to react emotionally", "failure to rise above stereotypy", and "general failure to develop the concept of 'object'". They elaborate on a developmental description which is deficit-oriented:

> First, there is an apparent failure of the very profoundly retarded to enter into an evolving system of feedback with various sources of stimulation in their environments... Secondly, there is an apparent failure to respond positively - in an emotional or motivational sense - to variations in perceptual-environmental events ... Third, there is an apparent failure to develop a symbolic-representational system which presumably requires the mediation of other people and which marks the transition from perceptual to conceptual organization of the environment.

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In describing complications arising from the American legislative mandate to integrate SMR-PMR children, Sontag, Burke and York (1973, p.25) note that "severely handicapped students may display hyperactivity, physical aggression, stereotyped behavior, self mutilation, severe seizures or other behaviors which cannot be ignored". In contemplating mandatory integration the authors empathize with the school bus driver faced with situations where "a student has a seizure, starts self multilating, throws feces, aggresses towards other students, screams all the way to and from school". The authors are dubious about providing integrated educational service to the SMR-PMR group of children, especially in the absence of appropriate supports, and they characterize this group in the following manner:

> This includes students who are not toilet trained; aggress toward others; do not attend to even the most pronounced social stimuli; self mutilate; ruminate; self stimulate; do not walk, speak, hear or see; manifest durable and intense temper tantrums; are not under even the most rudimentary forms of verbal control; do not imitate; manifest minimally controlled seizures; and/or have extremely brittle medical existences (p.21).

The accuracy and utility (or lack of utility) of such descriptions may well be a function of context. While purist sociological definitions of handicap call into question the very existence of innate deficits, clinical descriptions of handicap in the absence of contextual considerations are equally invalid. The above description may suggest the need for more appropriate transportation services rather then the need to exclude SMR-PMR children from school.

Berkson and Landesman-Dwyer (1977) criticize homogeneous characterizations of retardation in the literature. Several descriptive classifications are, however, presented in the research. Eyman and Miller (1978, p.ix) suggest that EMR children, the largest group of mentally retarded children, can be differentiated on the basis of "incapacity on the part of the individual to meet the demands of the social environment, particularly the school; retardation is generally mild, and their parents disproportionally represent the lower occupational and educational strata". In the less prevalent and more handicapped subgroup, "organic pathology is usually demonstrable, retardation is severe, physical signs of handicaps are frequently present, the parents are normal and have characteristics of the general population in terms of education and social status."

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In an earlier report Miller, (1976, p.57) distinguishes between two PMR groups, those with "some ambulation, communication and self-help skills and those who totally lack any of these skills." Miller's concern about lack of systematic research with the PMR population is echoed by Landesman-Dwyer and Sackett (1978) who report a three-year experimental intervention study with a PMR group. Utilizing Miller's (1976) distinction within the PMR population, Landesman-Dwyer and Sackett (1978, p.56) focus on extensively impaired individuals, providing a detailed description of the subjects, who:

> (1) are incapable of moving through space, even with prosthetic devices or physical assistance, (2) are totally lacking all adaptive behavior....(3) are extremely small for their chronological age (i.e. below the third percentile for height, weight and head circumference).

The individuals in their study are bedridden, "unresponsive to external stimuli, highly variable in response to the Bayley Scales of Infant Development" and generally function below the level of a six month infant of normal development. Methods and phases of the intervention programme are also described in detail.

The descriptive approach taken by Sontag, Burke and York (1973) delineates a population characterized in homogeneous terms which suggest non-utilitarian outcomes and sympathy for school bus drivers. The descriptive approach taken by Landesman-Dwyer and Sackett (1978, p.56) delineates a very different outcome for a group they characterize as an "extremely heterogeneous group in terms of central nervous system integrity, physical growth and development, and behavioral repertoires." They conclude that intensive physical and social stimulation positively changed behaviour profiles, and that all of their subjects "showed beneficial effects of treatment in their ongoing ward behavior, diurnal sleep patterns, Bayley performance or response to novel situations".

In comparing these two studies, it is important to specify their contextual differences: a resource-poor integrated education setting versus a resource-rich experimental hospital programme. Quality of reporting definitional and descriptive data must also be contrasted, however, as it will influence specification of programme objectives, expectations for individual children, and treatment outcomes. A review of the literature on individual assessment and its relationship to programme will now be presented.

IV. ASSESSMENT

The literature regarding assessment is extensive and focusses on the individual, particular programmes, and service delivery systems. Parents and siblings of MR children are assessed (Farber, 1959) as are external variables which affect family dynamics (Fotheringham, Skelton and Hoddinott, 1971). The social development of MR children is assessed (Doll, 1969; Gunzburg, 1965), their teachers are assessed (Yoshida, 1976), and the social ecology of their environments is assessed (Moos, 1974, 1979). The methodological validity of particular tests is debated (Haskett and Bell, 1978; Mein, 1962) and then the validity of the methodology debates is assessed (Bradburn, Sudman et al., 1979). Finally, the process of individual assessment is evaluated and reformulated (Feuerstein, Rand, Hoffman, 1979) as is the process of system assessment (Guttentag, 1977).

The interrelationships between the foci of assessment approaches are critical to understanding and meeting children's needs (Gottlieb, ed., 1980) and the critical linkage between assessment and programme is also emphasized (Friedlander, Sterritt and Kirk, eds., 1975). As in other areas of retardation, approaches to assessment are confounded by conflicting theories and assumptions. The conceptually confused equation of "testing" with "assessment" has been identified as problematic (Davidson, Silverman and Hughes, 1981; MacIntyre, Keeton, and Agard, 1980; Silverman, Davidson and Weintraub, eds., 1981) and is not unrelated to the use of intelligence "scores" to diagnose retardation (Fishler, 1971).

A review of the literature on individual assessment is complicated by the plethora of testing studies published (Bate, Smith and James, n.d.; Chun, K., 1975; Johnson and Bommarito, 1971). For example, the Illinois Test of Psycholinguistic Abilities (Kirk and McCarthy, 1961) has generated over six hundred references cited in Buros (ed., 1978). Selection of appropriate testing devices for use with non-multihandicapped children is cumbersome at best. The proliferation of devices developed or adapted to the preschool, MR, and SMR-PMR populations further exacerbates unwieldy selection (Anastasi, 1969; Compton, 1980; Cronbach, 1960; Johnson, 1976; Stangler, Huber and Routh, 1980).

Historic debates on the meaning and measurability of intelligence as a fixed innate entity are echoed in the retardation assessment literature (Dobson, 1971). MacAndrew and Edgerton (1964-b), for example, claim that IQs are useful predictors and also emphasize (1965, p.883) that the

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predictive validity of the IQ should not be criticized for other faults or misuses since it was never intended to "provide information concerning why a given patient behaves as he does, how he came to be the way he is, and how he might best be treated."

In opposition to this position, Baumeister (1965, p.881-2) argues that "the intelligence test measures only a narrow band of adaptive behaviors", and is "often inappropriately used to the exclusion of other and perhaps more relevant data concering the functioning of an individual." He is particularly critical of the usage of intelligence tests with the SMR-PMR groups and concerned that reliance on IQs leads to the mistaken emphasis on retardation "as a unitary, pervasive deficit - i.e. lack of intelligence." He concludes that the more useful assessment question is "how will the individual...respond to particular programs designed to ameliorate his condition?"

Menolascino and Eaton (1967, p.377) also suggest that "psychological tests are of limited value as prognostic indicators...because of difficulties in obtaining adequate examinations", especially with severely retarded children also diagnosed as psychotic. Difficulties associated with obtaining reliable scores with PMR children are corroborated by Landesman-Dwyer and Sackett (1978) who caution against single-event tests to measure ability or to predict outcome. They note that the "untestability" of SMR-PMR children is frequently alluded to in the literature and often used as the primary factor leading to classification of SMR-PMR children. Other investigators have also countered claims of untestability (Alpern and Boll, 1972; Cambria, 1983; Davidson, 1983; Kohlberg and DeVries, 1980; Stark et al., 1973). They suggest broader conceptualizations of the meaning and intent of assessment and argue against polemic debates in the assessment field.

Berkson and Landesman-Dwyer (1977, p.428-30) identify four categories of assessment apparent in the literature:

(1) assessments of medical syndromes and behaviour which generally suggest widespread behavioural differences "between syndrome groups of the same general intellectual level", and which leave unresolved the questions of whether PMR individuals represent the "lower" end of a continuum or a "qualitatively or biologically distinct" group;

(2) sensory and perceptual assessments including studies on auditory perception, pain (see Wolfensberger, 1975 and 1972), taste, smell, depth and length perception and spatial orientation. The general conclusions of these experiments suggest the usefulness of "crude psychometic assessment of

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severely profoundly retarded persons...particularly with free-choice situations. However, there are substantial individual differences in responsiveness to particular modalities and intensities of stimuli";

(3) standardized intelligence testing has some limited predictive validity, although this is "inadequate at the lowest end", and thus at best should be regarded as "only a crude predictive and administrative device and not a guide for treatment"; "variabilty of response to the same test items is characteristic" of PMR individuals and is "independent of the overall development quotient";

(4) adaptive behaviour measures which have evolved into "an elaborate technology"; baseline measures are used not as predictors but to identify programme needs in such areas as "ambulation, self-feeding and table manners, dressing and grooming, toileting skills, activity level, stereotyped and self-destructive behavior, antisocial behavior and social communication."

Adaptive functioning scales have been widely applied to community-based adult MR vocational training (Marlett, 1971). These devices have also received increased attention in children's educational services (Leland et al., 1967; Nihira et al., 1969) and have been modified for use with the PMR population to compensate for format (Gordon, 1973) and content problems (Husted, Wallin and Worden, 1971). Tarjan (1975, p.116) suggests that assessment should include the identification of "basic brain-behavior relationships by careful neurological and behavioral assessment." Ross (1972) also emphasizes the importance of assessing significant adaptive behaviour levels, and Berkson and Landesman-Dwyer (1977, p.431) are hopeful that through adaptive behaviour measures "objective descriptions of the behavior of severely-profoundly retarded persons may assist in planning services through statistical statements of the extent and types of training programmes needed".

The determination of what constitutes adaptive behaviour may be as problematic as is assessment generally. Both the medically-oriented and behaviour-based assessment approaches report the frequent presence of stereotype observed in SMR-PMR children (Belmont, 1971), similar to the behaviours observed with blind and autistic children (Hutt and Hutt, eds., 1970). Stereotyped behaviours range from infrequent to incessant, from benign to self-injurious and include body rocking, finger/hand waving, head nodding/banging and self-mutilation. With the exception of the latter category there is not agreement in the literature about whether such behaviours are adaptive or maladaptive.

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James and Rosenberger (1971) report that rocking behaviour is linked to measurable physiological rhythms. Perline and Levinsky (1968) and Forehand and Baumeister (1975) have modified such behaviours with operant conditioning techniques and their studies imply environmental causation factors. In an experimental analysis of environmental variables Hollis (1978, p.49) reports that operant techniques which manipulate auditory stimulation can increase and decrease the frequency of rocking behaviour. He concludes that "all subjects could be brought under operant control, but that some high rate behaviors may require different procedures in order to decelerate them to near zero levels."

The issues related to the assessment and control of adaptive behaviours which emerge from the literature focus on two themes, the comparative efficacy of various modification techniques and the ethics of control. With reference to the former theme, Husted, Wallin and Wooden (1971, p.178-9) suggest that traditional assessment devices are based on the erroneous assumption that test equipment and test items possess "inherent motivational value" for PMR children. They report that the experimental use of concrete reinforcers during administation of the Cattell Infant Intelligence Scale results in significantly higher scores in both mental age and IQ of PMR children. They conclude that modification of testing approach will increase motivation and consistency of response thus giving "the tester a clearer picture of the cognitive structure of the child being evaluated".

Debates in the literature on questions of "technical" efficacy include the following problems: (i) ascertaining which behaviours should be assessed and modified (Baumeister, 1978; Berkson and Landesman-Dwyer, 1977; Landesman-Dwyer and Sackett, 1978); (ii) ascertaining what particular behaviours are actually being reinforced or extinguished (Baumeister, 1978); (iii) ascertaining whether traditionally relied-upon reinforcers do in fact reinforce adaptive behaviours or whether inadvertent extinction of adaptive behaviour may in fact occur (Libb, 1972); (iv) identifying useful reinforcers "amongst children for whom nothing appears pleasurable" (Clarke and Clarke, eds., 1973, p.188); and (v) whether generalization can occur (Garcia and DeHaven, 1974; Whitman, Zakaras and Chardos, 1971) or cannot occur (Striefel and Wetherby, 1973).

The nature of the methodology debates is linked with the arguments on ethics presented in the literature, especially in view of the lack of research-based "unanimity on methods of training or even on a desired curriculum"

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(Clarke and Clarke, eds., 1973, p.18). International reviews are particularly cautious about U.S.-based research, perceived as overemphasizing operant techniques to the exclusion of other considerations (Clarke and Clarke, eds., 1973). Gunzburg (1973, p.63) comments on "the ghastly American term that refers to 'human engineering'."

The reinforcer used in the Husted, Wallin and Wooden (1971) study was not particularly ghastly. Their operant technique - provision of pieces of candy - need not be construed as ethically distressing. Within a broader conceptual context, however, Mittler (1973, p.71) delineates the increasing realizition of the limitations of behaviourist-based educational assessement and control. Concerns and criticisms of operant techniques (Clarke and Clarke, eds., 1973; Gunzburg, 1973; Mittler, 1973; Wolfensberger, 1975) have apparently modified the modifiers.

Baumeister (1978) suggests that divergent theoretical and research orientations may well be complementary with regard to formulating ethical decisions. He suggests that the decision to control stereotyped behaviours must answer a number of assessment-based questions: (i) are the behaviours physically injurious? (ii) do they interfere with the ability to attend to/learn from the environment? (iii) despite initial appearances to the contrary are the behaviours adaptive rather than harmful? (iv) if identified as maladaptive, can behaviours identified as more adaptive be successfully substituted for stereotypy? (v) should the individual or the environment be modified? (vi) if the behaviours are identified as maladaptive, what modification techniques are most useful, and (vii) if modification is decided upon, are the proposed interventions ethical? While Baumeister's approach is behaviourally-based in some respects, his approach does not contradict ethical concerns and policies suggested by parent advocacy groups (Ontario Association for the Mentally Retarded, 1976). Baumeister also points out that the decision not to intervene may carry ethical implications as problematic as decisions to intervene.

The literature indicates that reliance upon traditional psychometric devices is unlikely to provide sufficient linkage to practical programme development, while adaptive functioning measures also cannot be used as panaceas. In fact,the avoidance of reliance on any one approach may be judicious (Salvia and Ysseldyke, 1981). Various assessment devices may be useful in conjunction with a range of approaches. Wills (1973) emphasizes the utility of naturalistic observation methods in assessing individual needs in order to provide behavioural descriptions of SMR-PMR children, an objective supported by Landesman-Dwyer and Sackett (1978).

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The importance of context and familiarity of surroundings and people during assessments is also suggested (Cambria, 1983), as is the importance of avoiding static and uni-dimensional assessment (Davidson, 1983).

After reviewing sixteen research studies with non-ambulatory PMR children, Myers, (ed., 1978, p.57) notes that "behavioral scientists and clinicians have recognized that most conventional standardized methods of psychological testing, observation, manipulation and treatment are not suitable", and that "many traditional assumptions about the processes of learning and stages of development appear to have little relevance" to SMR-PMR children. In his analysis of the experimental data, Myers concludes that "these individuals are responsive, given the ingenuity, patience and good fortune of the experimenters." Good fortune and curriculum will be examined in the next section.

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V. CURRICULUM

Context

I. L. Smith (1980, p.152) defines curriculum as "an organized and structured set of learnings or knowledge that society judges to be relevant to the education of its children and youth", and describes curriculum developed for MR children as rudimentary and not sufficiently thorough. He suggests that the development of structured content and specific transmission methods are both necessary to ensure effective curriculum strategies. Specification of curriculum objectives are required to facilitate the "general social competence and adaptation" of MR children, and should explicitly foster "changes in real social behavior".

Smith (1980) argues that curriculum evaluation should be directly related to programme effectiveness through measurement of pupil outcome. Repp and Lloyd (1980) concur with this emphasis, and propose that single-subject evaluative designs will enable useful curriculum assessment to be carried out. Meyen and Altman (1976, p.45) also stress the urgent need for school-based curriculum development and evaluation, and in fact identify this need as the single highest priority in educational planning for SMR-PMR children. They review and compare seven specific curricula and propose seventeen "researchable" questions, each of which "relates in some way to the interaction among the instructor, student, environment (and equipment) and curriculum." They are particularly concerned that education for SMR-PMR children "represents a research laboratory without precedent". Unless formative evaluation is developed, Meyen and Altman forewarn that arbitrary curriculum-related decisions may inadvertently become enshrined in education practice.

Several additional problems found in the general retardation research are reflected in the literature available on curricula for developmentally handicapped children. The first difficulty is the absence of accurate descriptions of the child populations. Smith (1974, p.745) states that "it is difficult to place the present findings and comparisons in perspective because investigators do not empirically define the meaning" of relevant terms, "nor do they typically present specific data" thus "leading to different points of view that are difficult to reconcile." Curriculum studies may initially appear to be directed to or inclusive of SMR children, but in fact are suitable to a far less handicapped group of children (Bibelheimer et al., 1971; Brown, Scheuerman and Crowner, 1976; Teaching Research Infant and Child Centre, 1976).

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The second difficulty is absence of accurate contextual descriptions, and claims for curricula used in "integrated" settings do not provide clear definitions or descriptions of the term "integration" (Hart, 1981; Love, 1972). Other curriculum approaches have been developed within segregated or specialized settings and would require modification if utilized in educational contexts which differ from the reported contexts (Bradley, Hundziak and Patterson, 1971; Council of Exceptional Children, 1974, No. 1; Glockner, 1974; Johnson and Werner, 1975; Myers, Sinco and Slatma, 1974; National Institute on Mental Retardation, 1978-a; Spain and Wigley, eds., 1975).

The absence of accurate population and context description does not preclude modification of a curriculum to suit the needs of particular children in particular settings, and in fact many of the above-mentioned studies offer useful resource material. The range of programmes and generalized claims is, however, extensive and many studies show evidence of "raw empiricism in the absence of meaningfulness" (Smith,1974, p.740). Curriculum cannot be fully evaluated without information about the relevant pupils or settings, nor can it be assessed without attention to the relevant process variables (Cronbach, 1977; Guttentag, 1977; Pask, 1973; Struening and Guttentag, eds., 1975).

Classroom variables are examined in a study of the composition of segregated EMR classes. Smith (1974, p.745-746) reports marked pupil heterogeneity within each class, and suggests that the variation in individual abilities is similar to pupil differences "in regular classes, but at lower levels of cognitive performance." Lack of homogeneity may be one factor explaining "why global curriculum efficacy studies with special classes have fared as poorly as those with regular classes." Another suggested factor is lack of teacher homogeneity, linked to "the results of curriculum studies which report wide variation in the behaviors of teachers using the same instructional materials". Other authors have also confirmed this finding (Guthrie, et al., 1977; Shipman, 1981; Silberman, 1969; Weikart et al., 1971).

Smith (1974) does not argue for or against homogeneity in class groupings. Instead, he presents statistical and interpretive evidence in support of research attention to process variables and inter-relationships between pupils, teachers, curricula and settings. Repp and Lloyd (1980, p.82) note that behaviourally-based research that excludes attention to process variables may well be useful in answering research questions, but may be "antithetical to the ethical delivery of treatment." They caution that we "should not confuse the purpose of treatment with the purpose of research."

Individualization

A judgement evident in some of the literature suggests that "the best teachers are constantly formulating a particular method to fit the needs of a particular child" and then proceeding "to assess what kind of effect it has" (Clarke and Clark, eds., 1973, p.194). While research on comparative teacher effectiveness will be reviewed in the section on systems, it is important to note here that more recent curriculum development explicity links prescriptive assessment to curriculum provision (Shearer and Shearer, 1976; Vulpe, 1977) and may include behavioural or other specific teaching approaches (Baker et al., 1976; Popovicha, 1977).

Curriculum approaches may also emphasize the importance of the clear specification of learning objectives (Bradley, Hundziak and Patterson, 1971). It is suggested that pupils may fail because the programme fails, and technology recipes are suggested: appropriately sequenced developmental learning stages; sufficiently small and discrete learning steps; methods to ensure utilization of effective and appropriate reinforcers; and provision of adequate opportunity to generalize learning (Hart, 1981; Love, 1972; Striefel and Wetherby, 1973; Teaching Research Infant and Child Centre, 1976).

There is also a judgement evident in the non-American literature that American approaches to curriculum have been controlled by operant conditioning techniques (Clarke and Clarke, eds., 1973; Gunzburg, 1973; Nirje, 1969; UNESCO, 1973; Wolfensberger, 1975). This criticism suggests that behaviour modification programmes currently available dictate curriculum approaches, rather than the preferable alternative of instructional materials being selected and adapted to meet the needs of individual children. Cunningham (1973, p.117) reviews and analyzes curriculum and selection decisions, and concludes his study with an emphasis on the importance of viewing "technology from the base of a philosophy of education", rather than the reverse.

Ryan (1973) also argues for individualization but against methodological dichotomies, and parallels Baumeister's (1978) argument for synthesis of approach. The American curriculum literature's emphasis on the (in)famous individualized education plan ("IEP") is one mechanism meant to support individualized instruction, and has been variously described as either reflecting a narrow clerical behaviourist approach or as a multi-dimensional device directly helpful to teachers in developing individual and group goals, lesson plans and evaluative tools (Lilly, 1977; Shavelson, 1976).

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Safer et al. (1978) conducted a research project to identify variables relevant to the implementation of America's mandatory IEP and to individualization of instruction. The findings suggested that special education teachers' attitudes towards individualized instruction were dependent on such factors as recency of teacher training, whether or not training was provided with an emphasis on diagnostic/prescriptive and behaviourist frameworks, whether or not the education systems supported that emphasis, and on the quality and degree of implementation strategies and administrative supports. There were indications that a role shift towards "teacher as instructional manager" did not, contrary to wide-spread teacher belief, necessitate reduction in direct pupil instruction time, nor did it necessarily require an increase in the time needed to search for appropriate instructional materials.

Resource support in boards developing successful implementation strategies included "provision of assessment systems, sequences of objectives, adequate materials cross-referenced to objectives, standardized forms...that effectively reduced the amount of teacher time and effort to complete tasks associated with planning" (p.14). Safer et al. (1978, p.15) particularly note one system which provided "a highly organized materials center inclusive of teacher-generated and tested materials organized both by objective and subject area...(with) materials cross-referenced to objectives in such a way that teachers can easily select appropriate... materials for a particular objective. Several choices are listed whenever possible." While this system's teachers continued to develop new materials from time to time, they did "not have to devote continual attention to the task" of curriculum search, selection and development.

The same education system that provided the materials centre also developed efficient record-keeping systems: "the forms used to document elements of the child's program must be rational and parallel to the planning process so the teacher is not continually completing multiple forms for different but overlapping purposes: this is particularly helpful in that little, if any, rewriting or paper shuffling is necessary" (p.18). Safer et al. (1978) do caution, however, that teachers and systems using non-behaviourist orientations to education may have legitimate concerns about the IEP itself, although principles of individualization of curriculum need not be affected by agreement or disagreement with behaviourism.

Curriculum Focus

Effective systemic supports will be reviewed in the next section, but Safer et al. (1978) do identify teachers'

interest in obtaining training in required skill and curriculum areas. In a review of the curriculum literature, Wehman and Bates (1978, p.3) note that traditional "3R's" approaches are not appropriate for SMR-PMR children, whose education should "include the development of self-care skills, language, motor skills and appropriate social behavior in addition to functional academics." They also comment that "severe behavior excess characterized by aggression and self stimulation are frequently displayed by these students, thereby complicating the delivery of educational services."

Wehman and Bates (1978, p.9) acknowledge that programmes developed in research contexts may not be easily implemented even in specialized education settings, because of budget, staffing and logistics factors. Despite these concerns, the authors conclude: "If severely handicapped students are to receive an individual education program that is appropriate and relevant to their needs, it is imperative that educators utilize this research as a basis for developing effective instructional programs." On the other hand, interpretive caution should be exercised not only to accommodate behavioural excess of the pupils but also that of the researchers (Baumeister, 1978; Cunningham, 1973; Gunzburg, 1973; Ontario Association for the Mentally Retarded, 1976; Rynders and Horrobin, 1980; Smith, 1974).

Motor Skills

The literature on motor skills curricula for SMR-PMR children includes diverse considerations. The environmental suitability of classrooms, materials, equipment, resource and lunch rooms, gyms, bathrooms, playgrounds and general building and transportation accessibility are significant in promoting independence-oriented ambulation and skill training, although architectural considerations are frequently neglected (Norris, 1969; Topliss, 1975; Wolfensberger, 1975; Wolfensberger and Glenn, 1975). The relationship between nutrition and motor development is generally noted (Read, 1973; Toronto Boards of Education and Health, 1981) but not prevalent in the retardation literature despite its importance (Acosta and Wenz, 1971).

The consultative as well as direct services of physiotherapists and occupational therapists are extremely important, since neglect of such programming or insufficient attention to positioning, regular and suitable exercise programmes and appropriate use of equipment and prosthetic devices may have adverse and serious consequences for the child (Koch and Dobson, eds., 1971; Reynell, 1973; Scarnati,

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1971; Utley, Holvoet and Barnes, 1977; Wolf and Anderson, eds., 1969). Campbell (1973) suggests that attention to specific skill training and motor development for MR children must also include focus on body awareness and global physical fitness. Specific motor development programmes for SMR-PMR children are available in the literature (Auxter, 1971; Webb, 1969) and in some studies are significantly linked to cognitive development (Brown, Scheuerman and Crowner, 1976) and to the facilitation of learning readiness, motivation and independence (Tooke, Dobrovolski and Chapman, 1982).

Self-Help and Play Skills

Specific curricula for the development of self-help or independence skills with SMR-PMR children often utilize adaptive functioning objectives, prescriptive assessments and diagnostic programmes (Westling and Murden, 1978). There is also focus in the literature on the use of compensatory utensils, equipment and teaching methods (Berkson and Landesman-Dwyer, 1977; Tooke, Dobrovolski and Chapman, 1982; Utley, Holvoet and Barnes, 1977). In addition, sequenced curriculum materials on independence training, body awareness, sex education, self-help skills and life skills training are also available from the Ontario and Canadian Associations for the Mentally Retarded, and from the National Institute on Mental Retardation. The self-help curricular focus in the literature most frequently includes the following areas:

(1) dressing and grooming self-help skills (Wehman and Bates, 1978);

(2) toilet training (Arzin and Foxx, 1971; Osarchuk, 1973; and others);

(3) personal hygiene and physical self-care programmes (Accardo and Capute, 1979) that can also prevent inappropriate radical medical intervention (Weintraub et al., 1981);

(4) eating skills and related table manners (Arzin and Armstrong, 1973; Utley, Holvoet and Barnes, 1977); and,

(5) spontaneous play skills, discussed below.

Pollack, Pollack and Tuffli (1973) are critical of the efficacy of non-modified creativity assessment devices, and report that an experimental population of SMR children placed (obtained some ranking) on modified creativity tests, although they did not score as highly as TMR subjects. While assessment and research context related to play, recreation and friendship (Ballard et al., 1977; MacAndrew and Edgerton, 1964-a, 1966; National Institute on Mental Retardation, 1978-a) could account for the creativity findings, divergent reports may also derive from divergent classification methods (Mercer, 1973).

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Contradicting the creativity experiment results reported above, the majority of the research specifies that lack of spontaneous and playful behaviour, and lack of desire to explore the environment are indeed characteristic of many SMR-PMR children (Berkson and Landesman-Dwyer, 1977; Haskett and Bell, 1978; Landesman-Dwyer and Sackett, 1978; Miller, 1976). Curriculum approaches to the development of play skills emphasize the use of natural as well as contrived environments (Wehman, 1976); modelling and behavioural techniques (Brodtke, Kirkpatrick and Rosenblatt, 1972; Wehman, 1977-b; Wehman and Marchant, 1979); the effective use of toys and equipment (Cleland, Swartz and Chasey, 1971; Wehman, 1976); and cooperative or social play (Morris and Dolker, 1974; Strain, 1975). Curriculum attention to the development of play skills throughout childhood may influence adult readiness for residential and pre-vocational services as well as receptivity to social-re-creational advocacy and friendship (Biklen, ed., 1974; Bogdon and Taylor, 1983; Strichart and Gottlieb, 1980; Wolfensberger and Zauha, eds., 1973)

Communication Skills

The development of communication skills in SMR-PMR children will also facilitate participation in social settings and is inter-related to cognitive development (Herriot, 1972, 1973; Mittler, 1973; Rynders, Behlen and Horrobin, 1979). The multiple influences on the inter-relationships between language, cognition and development were briefly outlined in the introductory section of this paper. The inter-relationships between language, affect and assessment approaches were also reviewed (Feuerstein, Rand and Hoffman, 1979; Feuerstein et al.,1979; Menolascino and Eaton, 1967; Stark et al., 1973). The specific influences of developmental theories (Hayden and Dimetrias, 1975; MacDonald et al., 1974), psycholinguistics (Matkin, 1972) and discrimination learning theory (Zeaman and House, 1963) are in evidence in SMR-PMR communication curricula.

Studies in autism (Hollis and Carrier, 1975; Rimland, 1964; Rutter, 1965; Wing, 1974) and deafness (Dale, 1967; Mindel and McCay, 1971; Schlesinger and Meadow, 1972) other expressive modes or combinations of such modes. These may include sign language (Benaroya et al., 1977; Bricker, 1972; Riekehof, 1963) and gesture (Topper, 1975; Webster et al., 1973). Symbolic communication and language boards have also been increasingly utilized (Hagen, Porter and Brink, 1973; McDonald and Schultz, 1973; Miller and Miller, 1973), largely derived from adaptations of Bliss symbols and pioneering research and development at the Ontario Crippled Children's Centre (Vanderheiden et al., 1975). Materials are also available to introduce symbol boards to non-handicapped children (McNaughton, 1975).

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Curriculum approaches to communication skills may also include emphasis on the development of receptive vocabulary (Bricker and Bricker, 1970) and relationships to instruction-following behaviour (Bricker and Bricker, 1972; Bricker, Heal et al., 1969; Striefel and Wetherby, 1973; Whitman, Zakaras and Chardos, 1971). The contributions of behaviourism to communication skill development is extensive (Garcia and DeHaven, 1974; Lynch and Bricker, 1972). The matching of particular curricula with the needs of particular children (Cunningham, 1973) will also be affected by available teaching arrangements (Phillips, Liebert and Poulos, 1973; Wehman and Bates, 1978) and context considerations (Smith, 1974).

While organizational variables are important, it has also been emphasized that the selection of any given communication approach will be affected by the teacher's or other specialist's familiarity with the method, and the ability to recognize the child's unique cognitive and developmental characteristics (Cambria, 1983). Crowell (1980, p.67) makes the following claim: "That the retarded person, especially the severely-profoundly retarded person, has a perspective that is different and should be shared with others is no doubt dismissed by many". Provision of training in communication skills is thus perceived as a critical aspect of curriculum strategy to enable self-expression, to enhance utilization of the social environment and to promote acquisition of additional skills.

Academic Skills

The development of self-help and communication training also facilitates increased teaching emphasis on functional academic skills, which in turn is related to life skills, pre-vocational, vocational and residential provision (Kugel and Wolfensberger, eds., 1969; Marlett, 1971; Strichart and Gottlieb, 1980; Wehman and Bates, 1978). The importance of sequentially arranged arithmetic/mathematics curricula is emphasized by Wehman and Bates (1978), and Williams et al. (1974) provide a sequenced curriculum inclusive of such concepts as one-to-one correspondence, sets, equality, one-many, more-and-less, counting and addition and subtraction. Bellemy and Buttars (1975) and Marlett (1971) focus on functional skills such as money recognition and counting as preparation for increased independence, although some children may be more ready to learn these skills in adolescence or adulthood.

The relationship between language and reading is emphasized in the curriculum literature on SMR-PMR children (Rhodes et al., 1969; Wehman, 1977-a) and may suggest specific operant techniques (Rydberg, 1971). The research also argues

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against an assumption that seriously delayed children cannot learn to read (Evans and Denny, 1974; Fuller, 1974) and suggests that curriculum development be aligned with the child's communication mode (Kuntz, Carrier and Hollis, 1978).

The experiments in pre-academic and academic curriulum development for SMR-PMR children are often sequentially ordered and behaviourally oriented, and according to Kuntz, Carrier and Hollis (1978, p.145-146) have "demonstrated the ability (for severely handicapped children) to learn selected reading and writing skills". These authors conclude that a "productive teaching strategy might be best based upon a philosophy that emphasizes the teacher's ability to develop applicable programs and materials rather than the child's ability to learn." Teachers' abilities and sound curriculum development are, however, directly affected by administrative supports and priorities, and systemic considerations will be identified in the following section.

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VI. SYSTEMS

Context

The retardation research frequently emphasizes the importance of utilizing experimental findings in the applied evaluation of pupil progress and of curriculum efficacy. The research reports, however, have been characterized as "a series of disjointed studies that has lacked even the slightest semblance of continuity" and are often "not guided by any model that would suggest important variables requiring study" (Baker and Gottlieb, 1980, p.18).

There has been some attempt to identify classroom organization factors which affect pupil learning. This particular experimental focus questions whether developmentally delayed children learn more readily in small groups, in tutorials lead by teachers' aides, or in one-to-one situations. The findings appear contradictory, with some conclusions in support of small group learning (Favell, Favell and McGimsey, 1978; Fink and Sandall, 1978), some in favour of tutorial arrangements (Barrett and McCormack, 1973; Phillips, Liebert and Poulos, 1973) and yet others emphasizing the importance of one-to-one ratios and experienced teaching (Rynders and Horrobin, 1980; Westling, Ferrell and Swenson, 1982).

In an experiment on various types of classroom organizations and their effects on the progress of PMR children attending school in a segregated setting, Westling, Farrell and Swenson (1982, p.601) report that "these students often require a great deal of physical contact, particularly in the shaping or acquisition of new behavior" and conclude that "the one-to-one instructional arrangement appeared to be superior". The study does review previous findings, however, and in light of their review and other variables selected for study, the authors suggest that certain teaching arrangements may best be suited to particular curriculum foci. Some skills and activities will require less intense or less experienced teaching than others.

Decisions about classroom arrangements not only affect the SMR-PMR pupil, but are also dependent on other components within a service delivery system. This section will identify research into a number of systemic variables which may affect planning for educational services.

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Teachers

A number of education studies have examined the impact of teacher competence and attitudes on the child in regular classrooms. Brophy and Good (1974) developed a three-part typology of teaching style. The "proactive" teacher individualizes curriculum and takes the initiative in structuring pupil-teacher interactions; the "reactive" teacher also individualizes but tends to compensate less frequently for poor achievers; and the "overactive" teacher tends to exacerbate student differences, easily rejecting or giving up on poor performers.

Lortie (1975) also developed a teacher typology but one based on the career rewards perceived by teachers. He identifies "extrinsic" rewards such as salary and prestige, "ancillary" rewards such as security and hours, and "intrinsic" rewards, personal satisfaction derived from serving the needs of pupils. He suggests that teacher negativity to educational change is most marked when perceptions of intrinsic career satisfaction are interrupted.

While the Rosenthal and Jacobson (1968) study which examined the hypothesis of "self-fulfilling prophesy" and teacher "prejudice" has not been sucessfully replicated despite several attempts, aspects of their conclusions have been studied and confirmed. Fair et al. (1980) report that teachers are not always able to predict or evaluate pupil progress accurately. Teachers' evaluation strategies and conclusions about pupils vary widely, and teacher perceptions of pupils may be maintained despite readily available evidence suggesting that their perceptions are inaccurate. Martin and Keller (1976) found that teachers are not necessarily aware of peer group interactions and dynamics and may intervene inappropriately on the basis of inaccurate perceptions.

Safer (1980) reports similar findings with reference to teachers of MR children. She notes that teachers don't always recognize behavioural changes in their pupils when change does occur, and consequently may not alter classroom expectations appropriately. Since teachers' attitudes appear to correlate highly with peer group judgements, teachers may influence classmates' lack of awareness of behavioural change, and may inadvertently perpetuate negative classroom and peer group dynamics (Gottlieb, Semmel and Veldman, 1978). On the basis of these composite research findings, Baker and Gottlieb (1980, p.19) suggest that promoting adaptive behaviour of MR students may not be sufficient. They conclude that "future attempts to change the behavior of mentally retarded children may have to

employ as a criterion of success the extent to which others in the environment perceive changes in behavior, not whether outside observers can reliably detect the changes".

Shipman reports her findings from a large-scale longitudinal evaluation of Headstart programmes, and also identifies teacher characteristics likely to promote effective pupil learning:

> "...such teachers were supportive, were warm and were above average in our observation schedules in their use of positive reinforcement techniques. They made frequent and varied use of both verbal and non-verbal techniques for praising, and instead of criticizing a child when s/he could not execute a particular instruction, the teacher altered to adapt his or her behavior to the child... The important features were the teachers who were enthusiastic, who were informed about what they were doing, who...also used entirely small group or one-to-one kinds of teaching methods and were able to individualize." (Shipman, 1981, p.20)

Teacher characteristics were, however, only one among six environmental variables that Shipman researched, and the ability of teachers to interact with children was affected by multiple considerations, a perspective also confirmed by Rutter et al. (1979). Shipman also examined family characteristics (both status and process variables), classroom curriculum and peer interactions, the school's physical and organizational features, the community context and the individual child, concluding that the interaction of these components influenced both teacher and pupil competence.

Several statistical studies also suggest factors relevant to teacher effectiveness, although somewhat less directly. Contradicting popular sentiment, American surveys of teacher workload indicate that an average of between 46.5 and 50.3 hours per week are devoted to teaching duties with no compensation for overtime (Anderson et al., 1974; National Education Association, 1967) and Canadian findings have reported similar figures. Studies of the time commitments of special education teachers report that between 55 and 67 hours per week are devoted to work, "even longer hours than their regular education counterparts, a viewpoint that principals and directors of special education tend to confirm" (Safer et al., 1978, p.10). No education system "compensated teachers in any way for hours spent beyond contact time", and Safer et al. (1978, p.11) conclude

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that individualization of special education programming "relies to a great extent on the good will and dedication of special education teachers, not on the provision of adequate resources."

Resources

Several studies have examined resource supports to teachers providing special education or individualized programming. Baker and Gottlieb (1980, p.10) report that one of the factors influencing teachers' attitudes to MR pupils is their experience with and "expectations of receiving assistance ... from valued support services."

Teachers are more willing to teach MR pupils when supports are available, and positive attitudes are sustained and strengthened after initial teaching experience with MR pupils if the appropriate resources have been forthcoming (Gickling and Theobold, 1975). On the other hand, lack of sufficient knowledge, unrealistic teacher expectations about MR pupils and unavailabilitiy of valued supports lead to a decline in positive teacher attitudes (Baker and Gottlieb, 1980) and contribute to teacher "burn-out", sometimes in less than three years (Safer et al., 1978).

Resource provision may need to include emphasis on realistic teacher expectation. One study forewarns of the negative impact of unwarranted teacher optimism in providing educational services to handicapped children (Shotel, Iano and McGettigan, 1972). Teachers with little exposure to integration settings or to handicapped pupils were selected as the control group, and teachers about to commence teaching duties in an integrated setting inclusive of handicapped pupils formed the experimental group. At the outset of the study, the experimental group held more positive attitudes toward integration than the control group, but after the teaching year, those significant differences had disappeared. Whereas 63 percent of the teachers in the experimental group indicated disagreement with the new programme at the outset, 87 percent of the same group disagreed with integration after their teaching experiences.

Fine (1967) indicates that teachers with special education training place more emphasis on expectations for MR pupils' personal and social adjustment than do regular class teachers, who are more directed toward academic achievement of their pupils. Yoshida (1976) and others report that special education teachers are less negative in their attitudes towards MR pupils, although there is some

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indication that the orientation of special education teachers may preclude appropriate academic curricular focus (Kuntz, Carrier and Hollis, 1978).

The literature suggests that resource supports and teacher training/in-service should focus on several perspectives, including assisting teachers in formulating realistic expectations, and providing information about relevant curriculum programmes and pupil variation. Unrealistic enthusiasm, unnecessarily narrow curriculum focus, insufficient attention to teacher evaluation and to monitoring of pupil progress,as well as excessive demands on teachers' time and commitment will detract from educational effectiveness but may be remedied through appropriate resource supports (Baker and Gottlieb, 1980; Payne and Murray, 1974).

Some caution in interpretation is called for, however. The importance of teacher aides and volunteer supports to lower classroom teacher-pupil ratios is not disputed as a valuable resource, but administrators "must recognize that the addition of someone to the class does not cut the teacher's job description proportionately" since "teacher time is required to supervise and co-ordinate the activities of others in the classroom as well as to provide some training to new assistants" (Safer et al., 1978, p.19). In addition, research evidence "suggests that before launching a major in-service training program, districts should assess carefully the percentage of teachers who actually lack requisite skills, the specific skills lacking, and whether those skills can be acquired by training" (Safer et al., 1978, p.12). The literature also argues for direct teacher participation in decision-making, planning, implementation and evaluation of in-service programmes, access to consultants and other resources.

Baker and Gottlieb (1980, p.15) note discrepant findings regarding various mechanisms to provide teachers with support. They state that they "are not aware of any research that has systematically supplied regular classroom teachers with a variety of instructional behavioral management support, and assessed subsequent changes". On the other hand, the literature does suggest specific resources that are or may be required for educational provision with SMR-PMR children.

Multi-disciplinary approaches are considered essential (Wolf and Anderson, eds., 1969) and include teacher (and parent or pupil) access to assessment services (Fishler, 1971), social work (Schild, 1971-a) and nursing-medical resources (Cook, 1971; Accardo and Capute, 1979); access to communication and language training facilities;

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(Crowell, 1980; Richardson, 1971), and nutritional (Acosta and Wenz, 1971), behavioural (Kuntz, Carrier and Hollis, 1978; Wehman and Bates, 1978) and physiotherapeutic consultation and services (Scarnati, 1971; Utley, Holvoet and Barnes, 1977). Teachers or schools may also be called upon to suggest counselling (Schild, 1971-b) or psychiatric services (Menolascino, 1971) and to suggest information services to direct families to available parent relief or respite programmes, summer camps, medical-dental, recreational, residential, planning and advocacy/guardianship services (Weintraub et al., 1980). While the education system need not provide detailed listings or direct referral in these areas, liaison with agencies, parent advocacy groups and information centres will decrease unnecessary burdens on parents and teachers (National Institute on Mental Retardation, 1978-a).

Baker and Gottlieb (1980, p.14) itemize preventive and supportive resources, and include "in-service training, resource room services, special education in-class consultants, special materials and teachers' aides" and Wehman (1976) and Wehman and Bates (1978) advocate access to organized play materials and skill development resources. Meyen and Altman (1976) and Safer et al. (1978) also emphasize the importance of access to curriculum materials, research, inventories and consultative resources.

Cousultation and multi-perspective team approaches vary, and consequently may have differential impact on teacher perception of utility. Safer et al, reported that teachers were resentful of recommendations made by specialists who had limited awareness of classroom realities and demands. While this problem was not widespread an innovative solution was found:

> "In one of the districts, the problem of other school personnel contributing unreasonable goals and objectives to the child's program plan was handled by assigning responsibility for working on the goal or objective to the person suggesting it. If another staff member suggests a goal or objective, the teacher includes it in the plan only if he or she is in agreement with it or if the other staff member agrees to take responsibility for it." (Safer et al, 1978 p.8).

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Pollack (1973) proposes a consultation model directed towards crisis intervention, and identifies superfluity as the consultant's goal. Gunzburg (1973, p.62) forewarns of the organizational ineffectiveness of a multi-disciplinary team characterized by inter-specialty defensiveness and status differentiation and suggests that consultants' effectiveness rests on willingness to participate directly and on an ongoing basis in the education of SMR-PMR children.

Rutter et al. (1979), Shipman (1981) and Safer et al. (1978) report that relationships between teachers and school/board administrators also have direct impact on teacher self-confidence and competence. Information exchanges, non-authoritarian communication styles, joint planning and joint participation in decision-making at all levels are areas identified as promoting teacher effectiveness. Safer et al. (1978, p.19) report that "administators have a responsibility to demonstrate a positive attitude" toward programming, and "to establish a productive atmosphere in which it can take place", thus conveying to teachers a commitment that "the system is responsive to their concerns and reflective of their educational beliefs".

Parents

Another identified area of administrative leadership affects parental involvement, and administrators of school and boards are "in a unique position to promote open communication among school staff and between staff and parents, who also share in the program planning process" (Safer et al., 1978, p.19). Systemic accommodation of parental perspectives has been recognized as important (Barsch, 1969; Blatt, 1972; Council for Exceptional Children, 1974, No. 2) although may not be widely understood or practiced (Biklen, ed., 1974; Shipman, 1981; Yoshida and Gottlieb, 1977).

Emphasis in the literature on parental involvement includes the use of parents as adjunct teachers (Grim, ed., n.d.; MacDonald et al., 1974) and as enrichers/supporters of educational goals (Gordon, 1970; Gorham, 1975; Honig, 1975). As noted earlier, some of the reported research and practice may reflect compensatory models, based on implicit or explicit assumptions about parental adequacy. These orientations may be based on observing the effects instead of the absence of appropriate community supports, or may be based on misinterpretations of statistical and etiological hypotheses (Fotheringham, Skelton and Hoddinott, 1971).

Just as professionals have analyzed parenting styles, characteristics, affect and competence (Farber, 1959; Farber, Jenne and Toigo, 1960; Bettelheim, 1967), so too have parents analyzed the styles, characteristics, affect and competence of professionals, particularly in relationship to adequacy of service delivery (Biklen, ed., 1974; Dybwad, 1977; Listen Please, 1979; National Institute on Mental Retardation, 1978-b; Park, 1967).

Polarization may reflect the historical exclusion of parents from decision-making about their children. Yoshida and Gottlieb (1977, p.17) note that American judicial attention to due process and educational service provision was in part a response to imbalances between the vested interests and conflicting mandates of home and school. They report that "school systems were perceived as abusing their exclusive power as educational sorters of children." Their discussion is corroborated by J.A.C. Smith (1980) and Magsino (1982) whose Canadian analyses of legal implications support the concept of development of preventive education policies and practices.

Positive attitudes and preventive policies are easily suggested, but Yoshida and Gottlieb (1977, p.18) note that implementation may be difficult because education systems "lack precedents for developing an appropriate role for parents" and because of the "lack of clearly conceived models that provide alternatives" for parental involvement. They suggest that boards may not be cognizant of "the many possible pitfalls that are inherent in any formal attempt to include parents in decision-making roles". The authors analyze several stages in the educational planning process that may be conducive to parental involvement, and suggest factors which may be relevant to the evaluation of structures facilitating such involvement.

Safer et al. (1978) suggest that administrative support of teaching staff and systemic emphasis on the legitimacy of parental involvement directly influence constructive parent-teacher communication and joint planning. Polarization may thus be reduced and replaced by collaboration in meeting the complex needs of severely developmentally delayed children. Teachers uncomfortable with both individualized programming and home-school collaboration most often worked within systems that undermined teacher confidence and disregarded the importance of parental contribution, whereas teachers who preferred individualization and parent participation and who were supported by germane systemic and administrative policies "had confidence in their ability to effect pupil progress and viewed accountability in terms of their own responsibility toward the child" (Safer et al., 1978, p.9).

Community

Another variable which may affect the delivery of educational service to SMR-PMR children is an attitudinal one. It is important to note, however, that there is general methodological concern about the validity and reliability of research techniques utilized to assess attitude (Bradburn, Sudman et al., 1979). There is also considerable debate about the effects of specific techniques, including the influence of forced choice formats (Presser and Schuman, 1980), order of questions (Schuman, Presser and Ludwig, 1981), direct and indirect methods of obtaining responses (Bishop, Oldenick and Tuchfarber, 1982) and the reliability of responses to sensitive questions particularly where responses may be considered socially undesirable (Wiseman, 1972). If interpretative caution is utilized, however, several relevant implications emerge from the research.

Teacher influences on peer group response have been reviewed, but it is also important to note that receptivity of a host classroom to the integration of a handicapped pupil will be influenced by curriculum and instructional strategies, the cognitive and developmental levels of the non-handicapped pupils, and the age-appropriateness of materials, curriculum, interaction and reinforcement directed towards SMR-PMR children (Gottlieb and Switzky, 1982; Safer, 1980; Siperstein and Gottlieb, 1978).

It has also been suggested that laissez-faire attitudes to peer group acceptance are ineffective, and that consideration must be given to developing "structured activities that include the retarded child as an integral member of the classroom group" (Baker and Gottieb, 1980, p.22), a finding also borne out in preschool integration experiments (National Institute on Mental Retardation, 1978-a). While attention to age-appropriate materials and interaction are important, avoidance of acknowledging pupil variations may be equally significant. Safer (1980, p.32) notes that "the failure of the teacher to treat students differentially based on their expectancies for them results in an inappropriate treatment - to be treated equally can be biasing if students are unequal."

In contradistinction to previous attitude surveys, Gottlieb and Switzky (1982, p.596) report that among non-handicapped pupils "increased age was associated with a decrease in negative stereotype and an increase in a specific stereotype." Familiarity with retarded individuals or knowledge about retardation may not be sufficient to foster realistic and receptive attitudes. Siperstein and Bak (1980) suggest the need for explicit discussion in order

to confront and demythologize stereotyped attitudes, not only among non-handicapped school children but also with parents and teachers. While the authors acknowledge that facilitating realistic attitudes towards individuals who are labelled mentally retarded may initially dampen enthusiasm for social contact or integration, they argue that realistic and individualized expectations will prove more valuable in altering attitudes over extended periods of time.

Fine (1967) and Yoshida (1976) report that special education teachers' attitudes are more positive to MR pupils than regular classroom teachers, and that less negativity is directed to mildly handicapped children than to severely handicapped children. Siperstein and Gottlieb (1978) suggest that these differences are smaller when the research relates to general community integration as opposed to educational placement.

Teacher effectiveness, resource support, parental involvement and community attitudes will affect the quality of educational service delivery to SMR-PMR children. Attitude surveys and other research findings have, however, been misused to support opposing interpretations of the efficacy of service delivery. Polemic insistence on the "least restrictive environment" has created classroom in which students "have been the victims of precipitate placement" (Gottlieb, ed., 1980, p.x), while disregard for "the dignity of risk" and abnegation of individual integrity create "a predisposition to brutalize and dehumanize" (Wolfensberger, 1975, p.37). Conceptual and methodological evaluations of service delivery will be reviewed in the final section.

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VII. CONCLUSION

"In the graveyard of ignored or disregarded evaluations rest not only those technically inferior studies which earned their consignment to oblivion, there are also many studies seemingly of high quality which somehow failed to move their audiences to action" (Alkin, Daillak and White, 1979, p.13). Pask (1973) identified four methodological approaches to research on human services, noting that statistical and functional experimental approaches are more common than normative and organizational orientations. The research literature has increasingly attended to distinguishing between "studies designed primarily to add to the body of knowledge (research) (and) those studies designed primarily to provide information for decision-making (evaluation)" (Alkin, Daillak and White, 1979, p.13).

Cronbach (1977) argues that evaluation of human services is "first and foremost a political activity , a function performed within a social system." The distinction between traditional and evaluative research is also emphasized by Struening and Guttentag (1975, p.521):

> The role of evaluation research differs from that of conventional research in its explicit attempt to make value judgements. Evaluation research goes beyond hypothesis testing, if it is concerned with that at all. It is generally directed toward determining what is most effective, valuable, desirable or useful, rather than simply whether or not a hypothesis was supported.

Increasing attention has focussed on evaluative research within human services generally (Ackoff, 1975; Guttentag, 1977; Johnson, 1978; Moos, 1974, 1979) and within the MR field specifically (Corman and Gottlieb, 1979; Crowell, 1980; Meyers, MacMillan and Yoshida, 1980; Meyen and White, 1980; I.L. Smith, 1974, 1980). Yet a survey (Crowell, 1980, p. 55) of 822 MR articles in three journals indicated that only 18 reports "are concerned with evaluation, program evaluation or accountability" and only five are "reports about program evaluations or the development of evaluation instruments".

Crowell (1980, p.61) is particularly concerned about research approaches because of the rapid trend towards integration. He argues for the need to develop meta-systemic evaluative design to assess the dynamic functioning of an organization and its impact on the child:

> ...the question is no longer whether to change but rather how most effectively to change the system. Single perspective evaluation efforts are not change-oriented. The dominant paradigm inherited from the physical sciences imposes a framework of stability upon the component that is to be evaluated. Multiple perspective evaluations take "change" as a given and attempt to promote continual change that is necessary for system survival and evolution into a more complex and adaptable system.

How might meta-systemic evaluations of education services for SMR-PMR children be designed?

The major philosophical influence in the field of retardation is the concept of normalization (Nirje, 1969; Wolfensberger, 1972). Cautiously defined, normalization refers to the collective responsibility to modify individual, environmental, systemic and societal factors which lead to judgements of deviance and to dehumanizing consequences of those judgements. The principle of normalization is a philosophical, moral and political "multi-perspective" concept, and consequently has been abused, misinterpreted, successfully implemented (Pencovici, 1982) and widely debated.

Morris (1973, p. 50-52) suggests that research questions on normalization may have focussed on some of "the wrong questions" which fall into three categories: (i) "What kinds of services are needed in order to enable a particular type of deviant...to fit into our society in a non-deviant, politically inert way?"; (ii) "How can we make the community more tolerant of people whose behaviour is at variance with what is conventionally acceptable?"; and (iii) "What is the incidence and aetiology of a particular form of deviance?"

Morris (1973, p.53) also identifies the various definitional applications of normalization in different national contexts, and suggests that varying definitions reflect "basic differences in treatment ideology. The Swedes would appear to understand by this term (i.e. normalization) the abandonment of the hospital as a means of caring for the retarded at any stage... In England, on the other hand, normalization seems to mean that attempts should be made to humanize hospitals" as preparation prior to community placement. American experience has perhaps been modified by the behaviourist prevalence and operant conditioning techniques have been used effectively, ineffectively and abusively in the name of normalization. The Canadian literature appears more benign, and theoretical emphasis has been placed on community advocacy and the co-ordination of

appropriate supports to facilitate normalization. Custodial institutions still tend to equate normalization with freshly painted walls and individual toothbrushes.

Gunzburg (1973, p.60) cautions that interpretation of normalization "must not be the slavish aping of what is considered 'normal'" but instead may serve as the impetus "to create additional, designed normal learning opportunities using our knowledge of the psychological impact of various teaching situations in order to promote in the mentally handicapped person a better all-round functioning". Mittler (1973, p.253) argues that "community care is a complete sham unless you provide in the community the resources to optimise potential of development". Reminiscent of Vanier's philosophy of communal responsibility for individuals who require shelter and dignity within a peopled, moral and religious world, Gunzburg (1973, p.60) argues for the legitimacy of providing "a protective corner" within our society for those who wish such shelter.

Johnson (1978) has inventoried fifteen environmental evaluation instruments that include focus on normalization and on the assessment of service delivery. While a detailed review of these devices is outside the scope of this paper, it may be noted that Program Analysis of Service Systems ("P.A.S.S.") (Wolfensberger and Glenn, 1975) most readily conforms to the positive attributes of evaluation research identified by Pask (1973), Struening and Guttentag (eds., 1975), Cronbach (1977) and Crowell (1980), and is reviewed not only by Johnson (1978) but also by Flynn (1975, 1977) and Eyman, Demaine and Lei (1978).

P.A.S.S. is a complex evaluative device that specifies an explicit ideology, requires a trained team to identify strengths and weaknesses of service delivery, and in Canada is conducted under the auspices of the National Institute on Mental Retardation. The third and most recent revision of the P.A.S.S. Handbook outlines relevant literature reviews and provides useful commentary on the research criticisms. Nonetheless, Wolfensberger's (1978) analysis of P.A.S.S. findings in over four hundred diverse settings emphasizes the Field Manual's warning that the evaluation process may be a traumatic one for service providers, as Wolfensberger's (1978, p.15-16) somewhat acerbic commentary

suggests:

> If an inaccessible location is impossible to find or, better yet, in addition to it, you must find a location that is as close as possible to or on top of a cemetary or garbage dump, and that was formerly a brothel, TB sanitarium, or gay bar...Now what...can we call the people whom we serve? That's easy. If they are not sick, we call them patients. If they are no longer children, we call them kids. Old ladies we call girls. People who have seizures we call epileptics. Retarded people we call retardates, although we still shy away from calling mentally disordered persons disturbates...Your program must also be aimed at people much younger than those you actually serve, or at least look that way. To the old folks in nursing homes you give dolls; to retarded teenagers, you give Dick and Jane books to read; to physically handicapped teenagers you give Montessori equipment designed for two year olds.

In addition to varying tolerance levels for acerbic critique, service providers must question whether or not inevitably low ratings on many of the variables measured by P.A.S.S. will in fact promote implementation of the normalization principle. Crowell (1980) criticizes the legitimacy of the concept because it allegedly confuses organizational and individual needs, and fails to question whether individuals are indeed equal and normal. His criticism may be based on a misunderstanding of normalization as an end product rather than as process which envelopes the individual to provide him/her with dignity, human rights and learning opportunites. Nonetheless P.A.S.S. may not be fully congruent with other principles for implementing educational innovation, including emphasis on the interaction between participatory decision-making, appropriate in-service and resource supports and feedback mechanisms (Fullan and Pomfret, 1977), interactions also emphasized by Beer (1970).

In a review of research studies on the efficacy of curriculum development within integrated settings I.L. Smith (1980, p.173) argues that placement decisions are optimally "an outcome of rational education planning and goal setting." Meyers, MacMillan and Yoshida (1980, p.197) note that evaluative studies on American integration with EMR students report lack of success for the majority of handicapped students "unless success would be defined as

barely getting along." Furthermore, review of transitional programmes and adequate supports, where such even existed, offered little information "on service delivery issues except how not to provide special help" (p.198). The extant literature shows "hurried placement without adequate preparation" (p.200) at great human expense, and suggests that precipitous integrated placement, even for children less handicapped than SMR-PMR students, may be a betrayal of the principle of normalization.

Context is not irrelevant to educational expectations. Observation of a severely or profoundly mentally retarded child or adult in the back ward of a large custodial institution, lying in one of hundreds of identical cribs, each decorated with identical mobiles, may lead the observer to a certain set of conclusions about the capacities of SMR-PMR individuals. Observation of the same population in an architecturally and aesthetically pleasing environment where individualized learning activities are convened will lead to another set of conclusions.

Nor is context irrelevant to the life experiences of the child who is developmentally handicapped, as the following parent's comments indicate:

> "It is a supreme paradox that commonplace amenities are exotic and unattainable for Jeff. He has never been invited to a friend's birthday party. At age twelve he has never been to visit at a friend's home. Due to the nature of his segregated school, and the kind of day required to get to and from school...he has little time or energy left for socialization. Furthermore his school friends are widely dispersed geographically and he has no 'school-time' contact with neighbourhood children. Aside perhaps from Julie, his sister, he really has no friend". (Biklen (ed.), 1974, p.42)

Placement decisions in the absence of appropriate educational programmes will not provide developmental, social or cognitive learning opportunities. The development, implementation and formative evaluation of community-based individualized educational services, appropriately supported by requisite resources, will "have the highest likelihood of improving human services" (Wolfensberger and Glenn, 1975, p.5), and may even foster friendship.

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